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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,514	03/26/2004	Bill Yannetti	250078US23	8586

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EXAMINER

KRUER, KEVIN R

ART UNIT PAPER NUMBER

1773

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/809,514

Applicant(s)

YANNETTI ET AL.

Examiner

Kevin R. Kruer

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 36 and 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support in the original disclosure for excluding silane in the core polymer layer.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 and 23-34 are unpatentable over Vincent (US 3,437,536) in view of Matsuura et al (US 4,412,042).

Vincent teaches a laminate comprising foamed plastic cores and outer metal substrates are well known in the art (see columns 1 and 2). The metal may comprise copper (col 2, lines 4+). The core may comprise a polyolefin foam (col 1, lines 36+).

Vincent does not teach that the core may comprise the claimed thermoplastic polymer and at least one silane of formula (I). However, Matsuura teaches a crosslinked polyolefin comprising polyolefin modified with silane (abstract). The polyolefin may be polyethylene with a density of 0.85-0.910 (col 1, lines 68+). The silane may be represented by the general formula $\text{SiRR}'\text{Y}_2$, wherein R is an unsaturated olefin, Y is a hydrolyzable organic group such as an alkoxy, and R' is an unsaturated olefin or a hydrolysable organic group (col 6, lines 36+). The polymer may be foamed (col 7, lines 57+) or contain various fillers (col 7, lines 56+). Said polyolefin is excellent in both heat resistance and in elongation properties (col 1, lines 32+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the foam taught in Matsuura in the laminate taught in Vincent. The motivation for doing so would have been that said foam has excellent heat resistance and elongation properties.

With regard to claim 10, the metal layers taught in Vincent are herein understood to be "textured" because any layer is going to be inherently textured to some extent.

With regard to claims 23-34, the examiner takes the position that the laminate rendered obvious by Vincent in view of Matsuura has the silane of formula (I) present on the surface of the metal layer contacting the core polymer layer. Specifically, the silane modified polymer taught in Matsuura will comprise silanes throughout the composition, including the surface layer that contact the metal layers. With regard to claim 34, the examiner takes the position that the method of making a product does not patentably distinguish said product from a product taught in the prior art unless it can be shown

that the method of making the product inherently results in a materially different product. In the present application, the examiner takes the position that the laminate rendered obvious by Vincent in view of Matsuura reads on claim 34 wherein silane is present on the metal-core interface and present in the core polymer layer.

5. Claims 1-17 and 19-22 are unpatentable over Newman et al (US 4,313,996) in view of Matsuura et al (US 4,412,042).

Newman teaches a metal-plastic-metal laminate (abstract). The metal skin layers can be formed of the same metal such as copper (col 2, lines 20-44). The polymer core can be formed of any polymeric resinous material (col 2, lines 45+). The laminate may optionally contain an adhesive layer between the polymeric resinous material and the metal skin layers (col 3, lines 8+). Furthermore, the polymeric resinous material may further comprise reinforcing fibers (col 4, lines 1+).

Newman does not teach that the polymeric resinous material may comprise the claimed thermoplastic polymer and at least one silane of formula (I). However, Matsuura teaches a crosslinked polyolefin comprising polyolefin modified with silane (abstract). The polyolefin may be polyethylene with a density of 0.85-0.910 (col 1, lines 68+). The silane may be represented by the general formula $\text{SiRR}'\text{Y}_2$, wherein R is an unsaturated olefin, Y is a hydrolyzable organic group such as an alkoxy, and R' is an unsaturated olefin or a hydrolysable organic group (col 6, lines 36+). The polymer may be foamed (col 7, lines 57+) or contain various fillers (col 7, lines 56+). Said polyolefin is excellent in both heat resistance and in elongation properties (col 1, lines 32+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention

was made to utilize the foam taught in Matsuura in the laminate taught in Newman. The motivation for doing so would have been that said polymer has excellent heat resistance and elongation properties.

With regard to claim 10, the metal layers taught in Newman are herein understood to be "textured" because any layer is going to be inherently textured to some extent.

6. Claims 1-6, 9, 10-18, 21, 22-28, 31, 32, and 35-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weber et al (US 3,467,569) in view of Matsuura (US 4,412,042).

Weber teaches a metal-foam polymer-metal laminate (col 1, lines 10+) wherein a solid thermoplastic backing material is present between the foam polymer layer and the metal layer (col 1, lines 30+). The backing layer is provides additional strength for the metal employed and the resulting laminate has improved properties such as good dent resistance, buckle resistance, and increased flexural modulus (col 2, lines 38+). Said layer may comprise a polyolefin (col 2, line 46). The metal layers may comprise aluminum, copper, steel, magnesium, lead, and the like (col 2, line 52+).

Weber does not teach that the backing layer may comprise the claimed silane functional polymer. However, Matsuura teaches a crosslinked polyolefin comprising polyolefin modified with silane (abstract). The polyolefin may be polyethylene with a density of 0.85-0.910 (col 1, lines 68+). The silane may be represented by the general formula $\text{SiRR}'\text{Y}_2$, wherein R is an unsaturated olefin, Y is a hydrolyzable organic group such as an alkoxy, and R' is an unsaturated olefin or a hydrolysable organic group (col

6, lines 36+). The polymer may be foamed (col 7, lines 57+) or contain various fillers (col 7, lines 56+). Said polyolefin is excellent in both heat resistance and in elongation properties (col 1, lines 32+). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the polymer taught in Matsuura as the backing layer of the laminate taught in Weber. The motivation for doing so would have been that said polymer has excellent heat resistance and elongation properties.

With regard to claim 10, the metal layers taught in Weber are herein understood to be "textured" because any layer is going to be inherently textured to some extent.

Response to Arguments

Applicant's arguments filed April 13, 2005 have been fully considered but they are not persuasive.

Applicant argues the invention of the pending application exhibits significantly improved resistance to delamination under corrosive conditions. In support of said argument, Applicant points to Table 1 in the originally filed application. Said Table, according to applicant, demonstrates that laminate of the present claims shows superior delamination characteristics than a metal/polymer laminate made with conventional adhesive. The examiner notes that the comparative examples in the Table do not represent the closest prior art. Furthermore, the examiner notes that the inventive examples do not agree in scope with the pending claims. The inventive examples are drawn to laminates comprising copper foil, organofunctional silane layers, and a LDPE core. Such a laminate is much narrower than the pending claims wherein the metal layer may comprise any metal, the LDPE layer is optionally present, and the silane

containing layer is much broader in scope than the unspecified species utilized in the examples.

Applicant further argues that the thermoplastic of Matsuura as the core material of a meta/polymer laminate may not provide be able to provide the desired adhesion characteristics because the silane is chemically bonded as a crosslinking unit between polymer molecules and, therefore, cannot act to bond the polymer of the core polymer layer with the metal surface of the metal layers. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a bond between the core layer and the metal surface) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further submits the crosslinking of a polymer material and an activated substrate surface may provide improved adhesion. Such crosslinking, according to applicant, is not possible in Matsuura because silane component is dedicated to crosslinking the polymer matrix. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., crosslinking between a core layer polymer and an activated metal surface) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant further argues the silane of the present invention carries out a different function than the silane of Matsuura. Said arguments are noted but are not commensurate in scope with the claimed invention because the claims are not limited with regard to the function of the silane.

With regard to claims 34 and 37, Applicant argues the claimed method limitation of "applying the silane onto at least one surface of each metal layer" distinguishes the claimed invention from the prior art. Said argument has been fully considered but is not persuasive because the claimed combination of art reads on said limitation. Specifically, the silane containing composition is applied to the metal surfaces.

With regard to newly added claims 36 and 41-44, Applicant argues the claims are distinguished from the applied art because the core layer must be "free of silane." The examiner initially notes that claims 41-44 do not contain such a limitation. With regard to claims 36 and 39, the combination of Weber et al (US 3,467,569) in view of Matsuura (US 4,412,042) is understood to read on said claims wherein the core is free of silane. Furthermore, the examiner notes that there does not seem to be adequate written description for said limitation.

With respect to Newman, Applicants the adhesive disclosed therein is polymer-based and modified with monomers "having reactive carboxylic acid groups." Said adhesive is taught as a "preferred" adhesive and is not critical to the teachings of Newman. The examiner notes that a reference may be relied upon for all that it fairly suggests, and is not limited in scope to the disclosed preferred embodiments.

For the reasons noted above, the rejections are maintained.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773